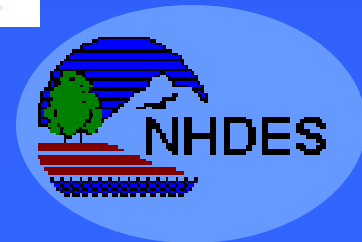


# Avoiding New Releases



*Presented by*  
**Gary S. Lynn, P.E.**



# Scope of New Release Problem

- California State Water Resources Control Board UST Release Study
- NH active gas station groundwater monitoring data

# California SWRCB Study

- University of California, Davis and Tracer Research Corp. study
- 182 randomly selected upgraded/new Tank Systems
- Tracer added to fuel, 7-10 days to diffuse
- Subsurface vapor samples collected and analyzed

## California SWRCB Study (cont'd)

- 61% leaked, all but one vapor releases
- Releases associated with upper part of tanks esp. the fill riser
- Releases ranged from 0.5 to 0.04 gallon/hr (NH leak detection standard 0.05 gal/hr)
- Better than similar 1998 study (35% of systems had > 1.2 gallon/day releases)

# DES Data

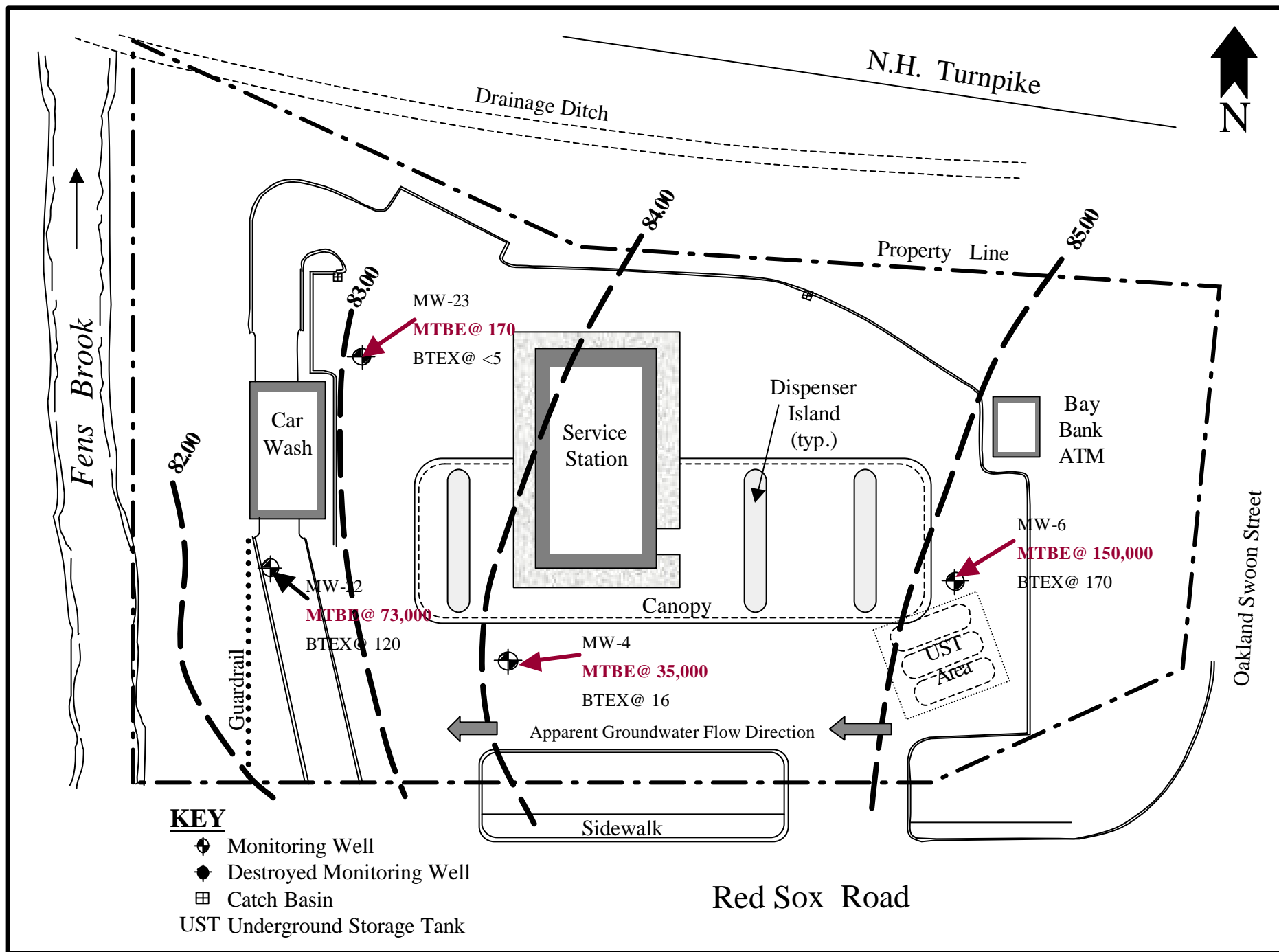
- New releases at 78 sites/18% of active gas station sites with groundwater monitoring systems
- Sites pass leak detection tests
- MtBE is typically the only contaminant with increases
- New release centered on tanks

# DES Data Analysis

- 71% of the releases from >10yr old tank systems
- 67% of the releases from fiberglass tank systems (older, more cracking?)

# DES Data

- Releases are not from the tanks
  - 81% of the releases from systems with a tight, double wall tank (same frequency as tank installations)
  - Therefore, most new small releases are from connections or other components, not tanks





# Groundwater Data MW-22

Date	Benzene	Toluene	MtBE
4/22/99	5.2 ppb	47.1ppb	2060 ppb
4/25/00	16.5	23.6	36,000
11/14/01	120	29	73,000
4/18/02	34	86	130,000

Note: Similar results for MW-4 and 6

# Leak Prevention Benefits

- Lawsuit Prevention
  - Increasing Lawsuit Trend
  - Larger Claims
  - Fund Coverage Limited to Actual Damages
- Second Deductible Avoidance
- Property Sale and Financing

# Release Prevention

- Petroleum Deliveries
- MAINTENANCE, MAINTENANCE....
  - Release Prevention Equipment
  - Leak Detection Equipment
  - Vapor Recovery System
  - Preserve your hardware investment

# Prevent and Address Delivery Spills



Spill Bucket



# Fill Spill Buckets and Risers



Spill bucket  
integrity,  
threaded  
connections,  
Single wall  
pipes....





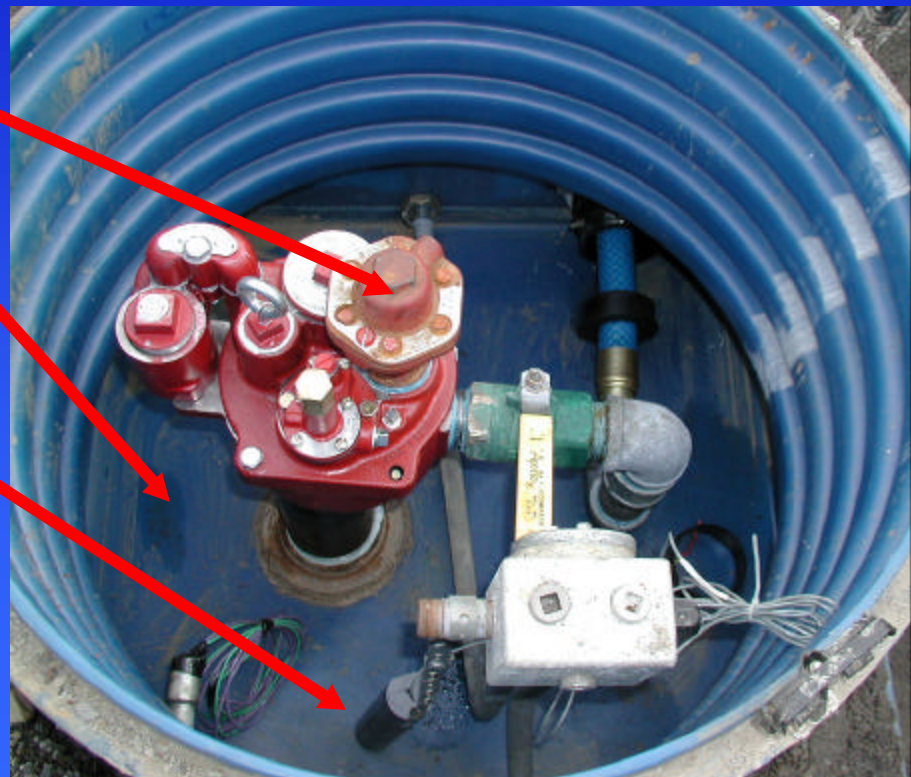
# Leaky Spill Buckets



# Release Prevention Equipment (Piping)

## Tank Sump Inspection

- Line leak detector
- Water / product
- Sensors



If water leaks in....





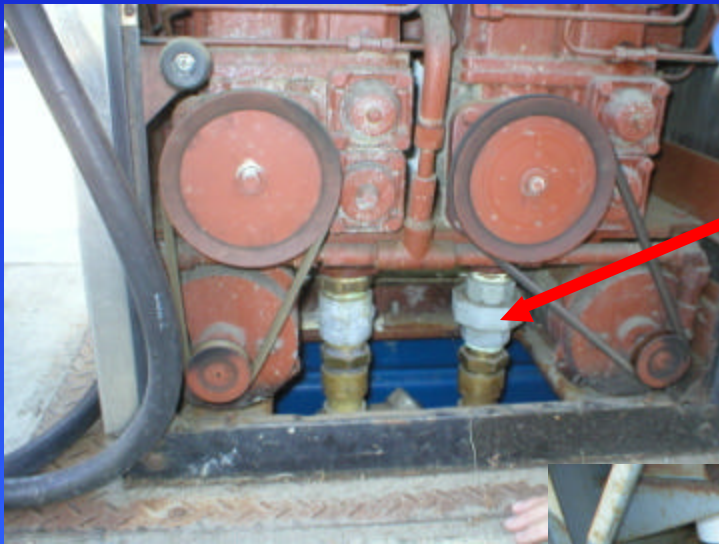
Product can leak out!!!



# Release Prevention (Dispensers)

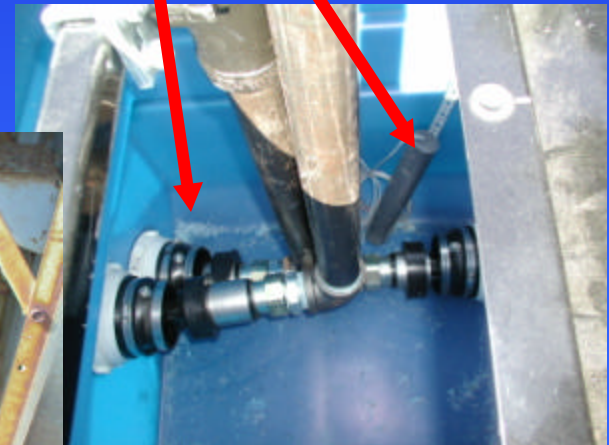


## Dispenser Sump Inspection



- Sensors (Optional)
- Water / product
- Check valve
- Corrosion Protection

Is there a sump?  
Meter seals, valves,  
unions all can leak.





# Release Detection (Tanks)

## Monitors (Consoles)

- Operation
- Annual tests



## Automatic Tank Gauging

- Operation

# Don't Use the Raise the Sensor Cure



# Vapor Recovery Lines



Single Wall Pipe = Vapor releases and condensation



# Infiltration into Wells



# Diagnosing Leaks

- Inspect to prevent and find leaks
  - Sumps monthly
  - Dispensers weekly for leaks
  - Site daily for discharges, spill buckets, odors and dry break

# Diagnosing Leaks - Testing

- ◌ Hydrostatic Test of Spill Buckets
- ◌ Vacuum Test of Sumps
- ◌ Stage II Vapor Recovery System Testing
- ◌ Tracer Testing (Helium...)
- ◌ Advanced Tracer Leak Testing



# DES Second Release Approach

- ◉ Warning Letters
- ◉ Second Release Deductible
- ◉ New Money vs. Old Money
- ◉ Rulemaking
  - Single wall piping & hardware
  - UST siting requirements
- ◉ DES Inspections (frequency+, release detection)

# Additional Sources of Information

California State Water Board Study:

[www.swrcb.ca.gov/cwphome/ust/docs/fbr/index.html](http://www.swrcb.ca.gov/cwphome/ust/docs/fbr/index.html)

and the binder

National Work Group on Leak Detection:

[www.nwglde.org](http://www.nwglde.org)

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